

CUET 2024 Environmental Studies Question Paper (Set-C) with Solutions

Question 1.

The ability of the environment to absorb and render removal of harmless waste and pollution is referred to as:

- (1) Source function of ecosystem
- (2) Sink function of ecosystem
- (3) Carrying capacity of ecosystem
- (4) Optimal capacity of ecosystem

Correct Answer: (2) Sink function of ecosystem

Solution:

The sink function of an ecosystem refers to its ability to absorb waste or pollution and neutralize it, ensuring environmental sustainability.

Quick Tip

The sink function is critical for balancing natural processes and reducing the impact of human activities on the environment.

Question 2.

Which of the following "water storage" types are commonly used in Bihar?

- (A) Bhundhis (B) Ahar
- (C) Kuhls (D) Pynes

Choose the correct answer from the options given below:

- (1) (A) and (C) only
- (2) (B) and (D) only
- (3) (A) and (B) only
- (4) (C) and (D) only

Correct Answer: (2) (B) and (D) only

Solution:

Ahar and Pynes are traditional water management systems specific to the region of Bihar. These systems are used to manage water for irrigation purposes effectively.

Quick Tip

Traditional water systems like Ahar and Pynes are community-driven efforts to conserve water and sustain agricultural productivity.

Question 3.

The diversity of organisms that shares the same community/habitat is called as

- (1) Beta diversity
- (2) Gamma diversity
- (3) Alpha diversity
- (4) Genetic diversity

Correct Answer: (3) Alpha diversity

Solution:

Alpha diversity measures the variety of species within a specific habitat or ecosystem, reflecting the richness of the local ecosystem.

Quick Tip

Alpha diversity focuses on local biodiversity, while beta and gamma diversities analyze biodiversity differences across habitats or regions.

Question 4.

Which of the following is *not* a basic pillar of sustainable development?

- (1) Environmental preservation
- (2) Social equity
- (3) Economic growth
- (4) Urbanisation

Correct Answer: (4) Urbanisation

Solution:

Sustainable development rests on three pillars: environmental preservation, social equity, and economic growth. Urbanisation is not directly considered a pillar but a consequence of economic growth.

Quick Tip

The three pillars of sustainable development ensure a balance between human progress and environmental protection.

Question 5.

Which of the following is a Kharif crop?

- (1) Wheat
- (2) Rice
- (3) Cucumber
- (4) Mustard

Correct Answer: (2) Rice

Solution:

Rice is a Kharif crop, cultivated during the rainy season, while wheat and mustard are Rabi crops grown during the winter season.

Quick Tip

Kharif crops are sown in June and harvested in October, relying heavily on monsoon rainfall.

Question 6.

The concept of Joint Forest Management does *not* include:

- (1) Government works closer with local people to manage forests.
- (2) Locals use forest resources in response to protecting forest ecosystems.
- (3) The infrastructure development at the cost of forest resources.
- (4) Sustainable conservation of forests.

Correct Answer: (3) The infrastructure development at the cost of forest resources.

Solution:

Joint Forest Management (JFM) emphasizes sustainable conservation of forests by involving local communities and ensuring the balance of forest ecosystems.

Quick Tip

JFM is a participatory approach where forest-dependent communities share responsibilities for forest protection and benefits.

Question 7.

Which of the following is the main characteristic of perpetual resources?

- (1) Consumption at very fast rate
- (2) Continuous availability at limited rate
- (3) Unconditional availability
- (4) Not formed naturally

Correct Answer: (2) Continuous availability at limited rate

Solution:

Perpetual resources, such as solar energy, are inexhaustible and available continuously, though their rate of availability may vary.

Quick Tip

Perpetual resources are renewable and essential for sustainable energy solutions.

Question 8.

Arrange the following radiation in increasing order of their wavelength:

- (A) UV-C
- (B) UV-B
- (C) UV-A
- (D) Infra-red
- (E) Microwave

Options:

- (1) (C), (B), (A), (D), (E)
- (2) (A), (B), (C), (E), (D)
- (3) (A), (B), (C), (D), (E)
- (4) (E), (D), (C), (B), (A)

Correct Answer: (3) (A), (B), (C), (D), (E)

Solution:

The electromagnetic spectrum is arranged in order of increasing wavelength as follows:

UV-C ; UV-B ; UV-A ; Infra-red ; Microwave.

UV-C has the shortest wavelength, while Microwave has the longest wavelength. Therefore, the correct order is (A), (B), (C), (D), (E).

Quick Tip

Electromagnetic waves are arranged by their wavelength, frequency, and energy. Shorter wavelength = higher energy.

Question 9.

A bee-keeper in an orchard enables pollination and fertilisation of the orchards' shrubs and trees. This is an example of:

- (1) Negative production externalities
- (2) Negative consumption externalities
- (3) Positive production externalities
- (4) Positive consumption externalities

Correct Answer: (3) Positive production externalities

Solution:

The activity of the bee-keeper produces additional benefits (pollination) for the orchard owner, which is a production-related activity. Hence, this is classified as a positive production externality.

Quick Tip

Positive production externalities create unintended benefits to others from a productive activity, improving overall societal welfare.

Question 10.

Arrange the atmospheric layers starting from the Earth's surface upwards:

- (A) Mesosphere
- (B) Stratosphere
- (C) Stratopause
- (D) Mesopause
- (E) Troposphere

Options:

- (1) (E), (C), (B), (D), (A)
- (2) (E), (C), (B), (A), (D)
- (3) (E), (B), (C), (A), (D)
- (4) (E), (B), (C), (D), (A)

Correct Answer: (3) (E), (B), (C), (A), (D)

Solution:

The layers of the atmosphere starting from the surface are arranged as follows: Troposphere, Stratosphere, Stratopause, Mesosphere, Mesopause. Thus, the correct order is (E), (B), (C), (A), (D).

Quick Tip

The acronym **TSMS** (Troposphere, Stratosphere, Mesosphere, Thermosphere) helps in memorizing the atmospheric layers.

Question 11.

Which of the following is associated with Ozone destruction in Stratosphere?

- (A) CFCs
- (B) Polar stratospheric clouds
- (C) UV-B
- (D) UV-A
- (E) Cl radicals

Options:

- (1) (A) and (E) only
- (2) (A), (B) and (E) only
- (3) (A), (C) and (D) only
- (4) (A), (B), (C) and (E) only

Correct Answer: (2) (A), (B) and (E) only

Solution:

Ozone destruction in the stratosphere is caused primarily by chemical reactions involving:

- Chlorofluorocarbons (CFCs)
- Polar stratospheric clouds, which enhance reactions during polar winter
- Chlorine radicals (Cl radicals), released by CFCs, break ozone molecules.

Other factors like UV-B radiation result from ozone depletion but are not direct causes.

Quick Tip

CFCs and Cl radicals are major contributors to ozone depletion. Mitigating their use is key to restoring the ozone layer.

Question 12.

Which of the following are examples of resources?

- (A) Materials
- (B) Energy
- (C) Knowledge
- (D) Services

Options:

- (1) (A) and (D) only
- (2) (A), (B) and (D) only
- (3) (A), (B) and (C) only
- (4) (A), (B), (C) and (D)

Correct Answer: (4) (A), (B), (C) and (D)

Solution:

Resources are anything that can be used to meet human needs and sustain life. This includes:

- **Materials:** Natural or man-made substances used for production
- **Energy:** Required to power systems and processes
- **Knowledge:** Intangible resource, vital for innovation and decision-making
- **Services:** Provide value and aid production or consumption.

Thus, all listed options are valid examples of resources.

Quick Tip

Resources can be tangible (e.g., materials, energy) or intangible (e.g., knowledge, services). Efficient use ensures sustainability.

Question 13.

Which of the following treaty prohibits the import of any hazardous waste (including radioactive waste) into African nations only?

- (1) The Basel Convention
- (2) The Capetown Convention
- (3) The Bamako Convention
- (4) The Madagascar Convention

Correct Answer: (3) The Bamako Convention

Solution:

The Bamako Convention was adopted in 1991 by African nations to ban the import of haz-

ardous waste into Africa, including radioactive materials. It is a regional agreement complementing the Basel Convention, which has a global focus but is less stringent regarding waste import.

Quick Tip

The Bamako Convention applies strictly to Africa, addressing the loopholes of the Basel Convention for the region.

Read the following passage and answer the next five questions:

Agricultural runoff, sewage and industrial effluents are major causes of deterioration of water quality in lakes and ponds. Productivity of lakes and ponds (for example algal bloom and phytoplankton bloom) increases manifold due to agricultural runoff as well as due to excess inputs of nutrients including limiting nutrients, but this continuous increased productivity leads to death of lakes and ponds. The dissolved oxygen, BOD, temperature, turbidity and salinity are important parameters of water quality in a lake and change naturally on day and night basis as well as seasonal basis. But, anthropogenic inputs change these parameters abruptly and adversely impact water quality of the lakes. As a result, water in lakes and ponds does not remain fit for human consumption as well as for livestock. Immediate attention and affirmative actions are needed to protect lakes and ponds in our environment.

Question 14.

Continuous increase of productivity of lakes eventually causes:

- (1) Biomagnification in lakes
- (2) Bioaccumulation in lakes
- (3) Eutrophication in lakes
- (4) Bioconcentration in lakes

Correct Answer: (3) Eutrophication in lakes

Solution:

Continuous increase in productivity due to excess nutrients leads to eutrophication in lakes. Eutrophication is characterized by excessive growth of algae and phytoplankton, which eventually leads to oxygen depletion and death of aquatic life. This process is a direct consequence of nutrient pollution, often from agricultural runoff.

Quick Tip

Eutrophication results from excessive nutrients, often from agricultural runoff, leading to harmful algal blooms.

Question 15.

Dissolved oxygen in water

- (1) remains constant in winter and summer
- (2) remains low in winter and high in summer
- (3) remains high in winter and low in summer
- (4) doesn't depend on temperature of water

Correct Answer: (3) remains high in winter and low in summer

Solution:

Dissolved oxygen in water tends to be higher in colder temperatures (winter) because colder water can hold more oxygen. In warmer temperatures (summer), the dissolved oxygen decreases due to the lower solubility of oxygen in warmer water.

Quick Tip

Temperature inversely affects the solubility of oxygen in water—colder water holds more oxygen.

Question 16.

Excess suspended particles in lake water due to agricultural runoff result in:

- (1) high salinity
- (2) high turbidity
- (3) high dissolved oxygen
- (4) high BOD

Correct Answer: (2) high turbidity

Solution:

Suspended particles from agricultural runoff contribute to increased turbidity, which is the cloudiness or haziness of water caused by particles that scatter light. High turbidity indicates poor water quality and can hinder the penetration of sunlight necessary for aquatic plants and organisms.

Quick Tip

Turbidity is a common indicator of water quality, and high turbidity can block sunlight, harming aquatic life.

Question 17.

Water in lakes having very high algal and phytoplankton growth is expected to have:

- (1) high dissolved oxygen
- (2) high dissolved oxygen and high BOD
- (3) low dissolved oxygen and high BOD
- (4) low dissolved oxygen and low BOD

Correct Answer: (3) low dissolved oxygen and high BOD

Solution:

High algal and phytoplankton growth leads to oxygen depletion as algae die and decompose, which increases Biochemical Oxygen Demand (BOD). This results in low dissolved oxygen levels and high BOD in the water, leading to hypoxic conditions that can harm aquatic life.

Quick Tip

High BOD indicates oxygen depletion, typically due to the decomposition of excessive organic matter, such as dead algae.

Question 18.

Which of the following is a limiting nutrient in lakes and ponds?

- (1) Iron
- (2) Phosphorus
- (3) Magnesium
- (4) Sulphur

Correct Answer: (2) Phosphorus

Solution:

Phosphorus is often the limiting nutrient in lakes and ponds. It is required for the growth of algae and phytoplankton, and its availability often determines the level of productivity in these ecosystems. Excess phosphorus leads to eutrophication, which is harmful to water quality.

Quick Tip

Phosphorus is the key nutrient that limits algal growth in freshwater systems, contributing to eutrophication when in excess.

Read the following passage and answer the next five questions:

Species interaction and the productivity are two important components of any given ecosystem. In an ecosystem, interspecific interactions arise from the interaction of population of two different species. Such interactions could be beneficial to both species, harmful to both species, beneficial to one and harmful to other or vice-versa. There are also cases that exist where only one species is harmed or benefitted and the other remains unaffected. On the other hand, productivity of an ecosystem starts with photosynthesis by green plants and is measured as the amount of biomass produced over a period of time. Such biomass becomes available for consumption to heterotrophs.

Question 19.

The available biomass for consumption to herbivores and decomposers is often referred to as:

- (1) Primary production
- (2) Gross primary productivity
- (3) Net primary productivity
- (4) Secondary productivity

Correct Answer: (3) Net primary productivity

Solution:

Net primary productivity (NPP) is the energy remaining in plants after accounting for the energy used in respiration. It represents the biomass available for herbivores and decomposers. Gross primary productivity (GPP) refers to the total energy produced through photosynthesis, but NPP is the fraction available for the next trophic level.

Quick Tip

Net primary productivity is the energy available to consumers after subtracting the plant's respiratory losses from the gross primary productivity.

Question 20.

Rate of production of organic matter during photosynthesis is referred to as:

- (1) Primary production

- (2) Gross primary productivity
- (3) Net primary productivity
- (4) Standing crop

Correct Answer: (2) Gross primary productivity

Solution:

Gross primary productivity (GPP) refers to the total amount of organic matter produced by photosynthesis in plants. It is the starting point of energy flow in an ecosystem. GPP accounts for the total energy captured, while some portion of it is used for plant respiration.

Quick Tip

Gross primary productivity is the total energy captured by plants through photosynthesis, while net primary productivity is the energy available for herbivores.

Question 21.

Which of the following are correct for the interaction between sea anemone that has stinging tentacles and clownfish?

- (1) Both species are benefitted
- (2) Both are harmed
- (3) One is harmed and the other is benefitted
- (4) One is benefitted and the other remains unaffected

Correct Answer: (1) Both species are benefitted

Solution:

The interaction between sea anemones and clownfish is an example of mutualism. Clownfish receive protection from predators by living among the sea anemone's stinging tentacles, while the sea anemone benefits from the clownfish driving away potential threats and parasites.

Quick Tip

Mutualism is an interaction where both species derive a benefit, as seen in the sea anemone and clownfish relationship.

Question 22.

The species interaction in which both interacting species are harmed is referred to as:

- (1) Predation
- (2) Parasitism

- (3) Competition
- (4) Mutualism

Correct Answer: (3) Competition

Solution:

Competition occurs when two species compete for the same resources, leading to harm for both because the availability of resources becomes limited. This type of interaction reduces the fitness of both species.

Quick Tip

Competition is detrimental to both species as they compete for the same limited resources, such as food, space, or mates.

Question 23.

Mycorrhizal association between fungi and the roots of higher plants is best referred to as:

- (1) Commensalism
- (2) Amensalism
- (3) Mutualism
- (4) Competition

Correct Answer: (3) Mutualism

Solution:

In mycorrhizal associations, fungi and plant roots form a mutualistic relationship. The fungi help the plants absorb water and nutrients, while the plants provide the fungi with carbohydrates produced during photosynthesis.

Quick Tip

Mycorrhizal associations are a classic example of mutualism, improving nutrient uptake for plants while benefiting fungi with carbohydrates.

Question 24.

Match List-I with List-II:

List-I (Author)	List-II (Book/Poem)
(A) Gary Snyder	(I) Mountains and Rivers Without End
(B) Wendell Berry	(II) The Closing Circle
(C) Rachel Carson	(III) Silent Spring
(D) Barry Commoner	(IV) A Place on Earth

Choose the correct answer from the options given below:

- (1) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)
- (2) (A) - (I), (B) - (IV), (C) - (III), (D) - (II)
- (3) (A) - (III), (B) - (IV), (C) - (II), (D) - (I)
- (4) (A) - (IV), (B) - (II), (C) - (III), (D) - (I)

Correct Answer: (2) (A) - (I), (B) - (IV), (C) - (III), (D) - (II)

Solution:

The correct match is based on the following associations:

- Gary Snyder is associated with *Mountains and Rivers Without End*.
- Wendell Berry wrote *A Place on Earth*.
- Rachel Carson is famous for *Silent Spring*.
- Barry Commoner is connected with *The Closing Circle*.

Quick Tip

Memorize key authors and their works to effectively answer match-the-following questions.

Question 25.

Match List-I with List-II:

List-I (Concept)	List-II (Proposed by)
(A) Ecology	(I) Norman Myers
(B) Ecosystem	(II) Ernst Haeckel
(C) Human population growth	(III) Sir Arthur Tansley
(D) Hot spots	(IV) T R Malthus

Choose the correct answer from the options given below:

- (1) (A) - (I), (B) - (IV), (C) - (II), (D) - (III)
- (2) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
- (3) (A) - (III), (B) - (III), (C) - (IV), (D) - (I)
- (4) (A) - (IV), (B) - (II), (C) - (III), (D) - (I)

Correct Answer: (2) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

Solution:

The correct match is:

- Ecology was proposed by Ernst Haeckel.
- Ecosystem was introduced by Sir Arthur Tansley.
- Human population growth is discussed by T R Malthus.
- Hot spots are identified by Norman Myers.

Quick Tip

Understanding key ecological concepts and their proponents helps in mastering such match-the-following questions.

Question 26.

The ecological thought, which believes in saving the forests as trees give oxygen, better rainfall and air quality and not saving the environment for its true innate values, dominantly belongs to:

- (1) Deep ecology
- (2) Social ecology
- (3) Eco-feminism
- (4) Shallow ecology

Correct Answer: (4) Shallow ecology

Solution:

Shallow ecology focuses on conserving the environment for human benefits, such as better oxygen levels, air quality, and rainfall, rather than recognizing its intrinsic value.

Quick Tip

Deep ecology values the environment for its intrinsic worth, while shallow ecology emphasizes human benefits.

Question 27.

Which of the following is *not* a major goal of WWF?

- (1) To conserve world biological diversity
- (2) Sustainable use of renewable natural resources
- (3) Reduction of pollution and wasteful consumption

(4) Creating worldwide fund for education

Correct Answer: (4) Creating worldwide fund for education

Solution:

WWF focuses on conserving biodiversity, sustainable use of resources, and reducing pollution. Education is a tool but not a primary goal.

Quick Tip

WWF's goals revolve around biodiversity conservation and sustainability, not direct educational funding.

Question 28.

The first Earth Day was celebrated on _____.

- (1) 20 April, 1970
- (2) 22 April, 1970
- (3) 05 June, 1970
- (4) 20 April, 1972

Correct Answer: (2) 22 April, 1970

Solution:

The first Earth Day was observed on 22 April, 1970, as a global movement to raise awareness about environmental protection.

Quick Tip

Earth Day is celebrated annually on 22 April to promote environmental awareness and action.

Question 29.

The plants and animals that cannot maintain a constant internal environment are called:

- (1) Regulators
- (2) Migraters
- (3) Conformers
- (4) Suspenders

Correct Answer: (3) Conformers

Solution:

Conformers are organisms that cannot maintain a constant internal environment. They rely on external environmental conditions to regulate their body temperature and other physiological processes. Examples include most invertebrates and some lower vertebrates.

Quick Tip

Conformers adjust their body functions to match external environmental changes, unlike regulators that maintain homeostasis.

Question 30.

The number of individuals of the same species that have come into a habitat from elsewhere during the time period under consideration is referred to as _____.

- (1) Emigration
- (2) Immigration
- (3) Natality
- (4) Mortality

Correct Answer: (2) Immigration

Solution:

Immigration refers to the movement of individuals of a species into a population in a specific area from other areas. This increases the population size in the given habitat.

Quick Tip

Immigration adds individuals to a population, whereas emigration involves individuals leaving the population.

Question 31.

Which of the following statements are correct?

- (A) Species that invade a bare area are called as pioneer species.
- (B) In primary succession on rocks, the pioneers are usually lichens.
- (C) In primary succession in water, the pioneers are reed swamps.
- (D) In secondary succession, species that invade depend on condition of soil, water and environment.

Choose the correct answer from the options given below:

- (1) (A), (B) and (D) only
- (2) (A), (B) and (C) only

- (3) (A), (B), (C) and (D)
 (4) (B), (C) and (D) only

Correct Answer: (3) (A), (B), (C) and (D)

Solution:

The correct statements are:

- Pioneer species are the first to colonize a bare area.
- On rocks, primary succession begins with lichens.
- In water, reed swamps serve as pioneers.
- Secondary succession depends on soil, water, and environmental conditions.

Quick Tip

Understanding primary and secondary succession helps identify pioneer species and their role in ecosystem development.

Question 32.

Match List-I with List-II:

List-I (State)	List-II (National Park)
(A) Madhya Pradesh	(I) Namdapha National Park
(B) Arunachal Pradesh	(II) Guindy National Park
(C) Meghalaya	(III) Nokrek National Park
(D) Tamil Nadu	(IV) Kuno National Park

Choose the correct answer from the options given below:

- (1) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)
 (2) (A) - (IV), (B) - (III), (C) - (II), (D) - (I)
 (3) (A) - (IV), (B) - (I), (C) - (II), (D) - (III)
 (4) (A) - (I), (B) - (IV), (C) - (II), (D) - (III)

Correct Answer: (1) (A) - (IV), (B) - (I), (C) - (III), (D) - (II)

Solution:

The correct matches are:

- Madhya Pradesh: Kuno National Park
- Arunachal Pradesh: Namdapha National Park
- Meghalaya: Nokrek National Park
- Tamil Nadu: Guindy National Park

Quick Tip

Linking states with their prominent national parks helps in answering geography-based ecology questions efficiently.

Question 33.

Which of the following soil has high water retention capacity?

- (1) Sandy soil
- (2) Loamy soil
- (3) Sandy silt soil
- (4) Clayey soil

Correct Answer: (4) Clayey soil

Solution:

Clayey soil has fine particles with very small pore spaces, which allow it to retain water for a longer period compared to other types of soil. This makes it suitable for crops requiring high water availability.

Quick Tip

Clayey soil is ideal for water-intensive crops due to its high water retention capacity.

Question 34.

Which of the following factors can affect the soil respiration process?

- (A) Temperature
- (B) Soil moisture
- (C) Aeration
- (D) Number of soil microbes
- (E) Quality of organic matter in the soil

Choose the correct answer from the options given below:

- (1) (A), (C) and (E) only
- (2) (A), (B), (C) and (D) only
- (3) (B), (C) and (D) only
- (4) (A), (B), (C), (D) and (E)

Correct Answer: (4) (A), (B), (C), (D) and (E)

Solution:

Soil respiration is influenced by various factors:

- Temperature and moisture regulate microbial activity.
- Aeration ensures oxygen availability.
- The number of microbes and quality of organic matter determine the rate of respiration.

Quick Tip

Soil respiration reflects microbial activity and is influenced by both abiotic and biotic factors.

Question 35.

Which of the following is *not* a criteria air pollutant under the National Ambient Air Quality Standards (NAAQS)?

- (1) CO₂
- (2) CO
- (3) O₃
- (4) Pb

Correct Answer: (1) CO₂

Solution:

CO₂ is not considered a criteria air pollutant under NAAQS, which includes pollutants like CO, O₃, and Pb, among others.

Quick Tip

Criteria air pollutants include those directly harmful to health, excluding CO₂, a greenhouse gas.

Question 36.

The disease "Itai-Itai" is caused by contamination of drinking water with which of the following?

- (1) Mercury
- (2) Cadmium
- (3) Arsenic

(4) Chromium

Correct Answer: (2) Cadmium

Solution:

“Itai-Itai” disease is caused by cadmium contamination in drinking water. It is associated with bone damage and kidney failure, as observed in Japan due to industrial pollution.

Quick Tip

Cadmium exposure through water and food is hazardous, leading to severe bone and kidney disorders.

Question 37.

Which of the following are essentially required for photochemical smog formation in ambient atmosphere?

- (1) Smoke, water vapour and low temperature (< 25 degree)
- (2) NO_x , SO_2 and high temperature (> 25 degree)
- (3) NO_x , VOCs and high temperature (> 25 degree)
- (4) Smoke, NO_x and low temperature (< 25 degree)

Correct Answer: (3) NO_x , VOCs and high temperature (> 25 degree)

Solution:

Photochemical smog occurs due to the reaction of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of sunlight and high temperature. It leads to the formation of harmful ground-level ozone.

Quick Tip

Minimizing VOC and NO_x emissions can effectively reduce photochemical smog.

Question 38.

Arrange the following stages of primary succession of plants from **last stage to first stage**:

- (A) Reed-swamp stage
- (B) Submerged plant stage
- (C) Marsh Meadow stage
- (D) Phytoplankton

Choose the correct answer from the options given below:

- (1) (A), (B), (C), (D)
- (2) (C), (A), (B), (D)
- (3) (D), (B), (A), (C)
- (4) (A), (C), (B), (D)

Correct Answer: (3) (D), (B), (A), (C)

Solution:

The correct order for primary succession in aquatic environments from the last stage to the first stage is:

- *Phytoplankton* (pioneer stage)
- *Submerged plant stage*
- *Reed-swamp stage*
- *Marsh Meadow stage* (climax stage).

Quick Tip

Primary succession follows a predictable sequence, starting with pioneers like phytoplankton and ending with climax vegetation.

Question 39.

Match List-I with List-II:

List-I (Forest Act/Policy)	List-II (Year)
(A) Forest Act	(I) 1927
(B) National Forest Policy	(II) 1988
(C) Forest Conservation Act	(III) 1980
(D) Wildlife Protection Act	(IV) 1972

Choose the correct answer from the options given below:

- (1) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)
- (2) (A) - (I), (B) - (III), (C) - (I), (D) - (IV)
- (3) (A) - (IV), (B) - (II), (C) - (III), (D) - (I)
- (4) (A) - (III), (B) - (I), (C) - (II), (D) - (IV)

Correct Answer: (1) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

Solution:

The correct matches are:

- *Forest Act (1927)* established legal frameworks for forest management.
- *National Forest Policy (1988)* focused on environmental conservation.
- *Forest Conservation Act (1980)* regulated deforestation.
- *Wildlife Protection Act (1972)* emphasized biodiversity preservation.

Quick Tip

Link laws with their years to understand historical milestones in environmental legislation.

Question 40.

Arrange the following from lowest to highest dry weight in a biomass pyramid of a grassland ecosystem:

- (A) Primary Producer
- (B) Primary Consumer
- (C) Secondary Consumer
- (D) Tertiary Consumer

Choose the correct answer from the options given below:

- (1) (A), (B), (C), (D)
- (2) (A), (C), (B), (D)
- (3) (D), (C), (B), (A)
- (4) (D), (C), (A), (B)

Correct Answer: (1) (A), (B), (C), (D)

Solution:

In a grassland ecosystem, the biomass pyramid reflects decreasing dry weight from producers to consumers:

- *Primary Producers* have the highest biomass.
- Followed by *Primary Consumers* (herbivores).
- Then *Secondary Consumers* (carnivores).
- *Tertiary Consumers* have the least biomass.

Quick Tip

Biomass decreases at higher trophic levels due to energy loss in the food chain.

Question 41.

"Curitiba," a city in Brazil, is famously known for its _____.

- (1) organic farming practices
- (2) water network projects implementation
- (3) integrated transport network system
- (4) solid waste disposal system

Correct Answer: (3) integrated transport network system

Solution:

Curitiba is internationally recognized for its innovative and efficient integrated transport network system, which includes a pioneering Bus Rapid Transit (BRT) system that reduces traffic congestion and environmental pollution.

Quick Tip

Curitiba's transport model is a benchmark for urban mobility and sustainable development worldwide.

Question 42.

Which of the following gases give the lowest percentage contribution to total global warming?

- (1) N_2O
- (2) NO_2
- (3) CFCs
- (4) CH_4

Correct Answer: (2) NO_2

Solution:

Among the listed gases, NO_2 contributes the least to global warming. Gases like CFCs and CH_4 have a much higher global warming potential and atmospheric concentration.

Quick Tip

Global warming potential (GWP) varies significantly among greenhouse gases; knowing their impact helps prioritize mitigation efforts.

Question 43.

Nomadic movements are not considered as migrations because people move from one place to another _____.

- (1) for economic reasons
- (2) for social factors
- (3) without any intention
- (4) for physical reasons

Correct Answer: (3) without any intention

Solution:

Nomadic movements are seasonal or periodic and lack the intent to permanently settle in a new location. Hence, they are not classified as migrations.

Quick Tip

Migration typically involves a permanent or long-term shift, while nomadism is cyclical and driven by resource availability.

Question 44.

Which of the following does *not* explain the relationship between human development and economic development?

- (1) Capability expansion through economic growth
- (2) Capability expansion through poverty reduction
- (3) Capability expansion through social services
- (4) Capability expansion through environmental degradation

Correct Answer: (4) Capability expansion through environmental degradation

Solution:

Human development emphasizes sustainable and inclusive growth. Environmental degradation negatively affects human development by reducing quality of life and access to resources, making option (4) incorrect.

Quick Tip

Sustainable development integrates economic progress with environmental conservation for long-term human welfare.

Question 45.

The Gandhian economy model does not contain elements of _____.

- (1) multiplication of needs
- (2) rejection of class-war

- (3) protectionism
- (4) nationalism

Correct Answer: (1) multiplication of needs

Solution:

The Gandhian economic model focuses on self-reliance, simplicity, and reducing material desires. It opposes the multiplication of needs, advocating for minimalism and sustainability instead.

Quick Tip

The Gandhian economy promotes ethical principles like simplicity, equity, and sustainable living.

Question 46.

Which of the following method is most suitable for safe disposal of hospital solid waste?

- (1) Dumping
- (2) Incineration
- (3) Pyrolysis
- (4) Composting

Correct Answer: (2) Incineration

Solution:

Incineration is the most suitable method for the safe disposal of hospital solid waste as it ensures the destruction of hazardous pathogens and reduces the waste volume significantly.

Quick Tip

Incineration is preferred for medical waste as it minimizes health risks and environmental contamination.

Question 47.

Arrange the following processes from **start to end** in a food distribution system:

- (A) Packaging of food
- (B) Processing of food
- (C) Storage of food
- (D) Marketing of food

Choose the correct answer from the options given below:

- (1) (A), (B), (C), (D)
- (2) (C), (B), (A), (D)
- (3) (A), (B), (D), (C)
- (4) (C), (B), (D), (A)

Correct Answer: (2) (C), (B), (A), (D)

Solution:

The correct order for the food distribution system is:

- *Storage of food*: Initial step for preserving raw materials.
- *Processing of food*: Transforming raw materials into consumables.
- *Packaging of food*: Ensuring safety and convenience.
- *Marketing of food*: Distribution and sales to consumers.

Quick Tip

Understanding the steps of food distribution ensures the efficiency and quality of food supply chains.

Question 48.

Which one of the following is an *incorrect* statement in the context of Gross Domestic Product (GDP)?

- (1) GDP does not measure the sustainability of growth.
- (2) GDP helps to understand whether economy is growing or contracting.
- (3) GDP reflects annual trends of inflation and prices of commodities.
- (4) GDP helps to understand shift in the annual changes in the country's economy.

Correct Answer: (3) GDP reflects annual trends of inflation and prices of commodities.

Solution:

GDP measures the economic performance of a country but does not directly reflect inflation or commodity prices, which are captured by other indices such as CPI or WPI.

Quick Tip

GDP focuses on the overall production of goods and services, while inflation trends require separate analysis through price indices.

Question 49.

Match List-I with List-II:

List-I (Protocol/Convention)	List-II (Year)
(A) Kyoto Protocol	(I) 1987
(B) Montreal Protocol	(II) 1997
(C) Bamako Convention	(III) 1989
(D) Basel Convention	(IV) 1998

Choose the correct answer from the options given below:

- (1) (A) - (IV), (B) - (I), (C) - (II), (D) - (III)
- (2) (A) - (II), (B) - (I), (C) - (III), (D) - (IV)
- (3) (A) - (III), (B) - (IV), (C) - (I), (D) - (II)
- (4) (A) - (II), (B) - (I), (C) - (IV), (D) - (III)

Correct Answer: (2) (A) - (II), (B) - (I), (C) - (III), (D) - (IV)

Solution:

The correct matches are:

- *Kyoto Protocol (1997)*: Focuses on reducing greenhouse gases.
- *Montreal Protocol (1987)*: Aims to protect the ozone layer.
- *Bamako Convention (1989)*: Addresses hazardous waste in Africa.
- *Basel Convention (1998)*: Regulates transboundary movements of hazardous waste.

Quick Tip

Memorizing the years and objectives of international agreements is crucial for environmental and policy-based questions.

Question 50.

Petroleum present in sedimentary rocks of a region can only be used when such regions are drilled out and put into use. Such petroleum reserves fall under the category of _____.

- (1) Actual resources
- (2) Potential resources
- (3) Stock resources
- (4) Reserve resources

Correct Answer: (2) Potential resources

Solution:

Petroleum in sedimentary rocks is considered a potential resource because it is available but cannot be utilized until appropriate extraction technology and infrastructure are implemented.

Quick Tip

Potential resources are identified but require future development for effective utilization.
